WHAT IS CLAIMED IS:

1. An optical scanning apparatus, comprising:

a pulse modulation mechanism configured to perform a pulse modulation with respect to input image data to output pulse-modulated image data;

a laser light source configured to generate a laser light beam in accordance with the pulse-modulated image data output by said pulse modulation mechanism, said laser light beam having a wavelength variation smaller than 2.0nm per one pulse of the laser light beam;

a light deflecting mechanism configured to deflect the laser light beam generated by said laser light source to convert the laser light beam into a scanning laser light beam; and

a scan-imaging device configured to condense the scanning laser light beam into a scanning light spot on a surface to be scanned.

2. The optical scanning apparatus as defined in Claim 1, wherein said scan-imaging device satisfies a following condition:

$|\Delta\lambda \times dH/d\lambda| < 5\ \mu m$,

where $\Delta\lambda$ represents the wavelength variation per one pulse of the laser light beam generated by said laser light source and $dH/d\lambda$ represents a magnification chromatic aberration of said scan-imaging device.

3. The optical scanning apparatus as defined in Claim 1, wherein said scan-imaging device satisfies a following condition:

W0/WbxDuty<0.8,

where W0 represents an image size corresponding to an image density, Wb represents a beam spot diameter of 1/e^2 in a direction corresponding to the main scanning, and Duty represents a duty ratio in one pulse of the laser light beam.

4. The optical scanning apparatus as defined in Claim 1, wherein said laser light source is a multi-beam light source configured to generate multiple laser light beams with differences of central wavelengths below 10nm among the multiple laser light beams.

5. The optical scanning apparatus as defined in Claim 1, wherein the laser light beam has at least five spectra.

6. An optical scanning apparatus, comprising:

a pulse modulation mechanism configured to perform a pulse modulation with respect to input image data to output pulse-modulated image data;

a laser light source configured to generate a laser light beam in accordance with the pulse-modulated image data output by said pulse modulation mechanism, said laser light beam having a wavelength variation greater than 0.5nm per one pulse of the laser light beam;

a light deflecting mechanism configured to deflect the laser light beam generated by said laser light source to convert the laser light beam into a scanning laser light beam; and

a scan-imaging device configured to condensing the scanning laser light beam

into a scanning light spot on a surface to be scanned,

wherein the pulse-modulated image data applied to said laser light source from said pulse modulation mechanism is controlled so that a displacement of dot position and variation in dot diameter caused by the wavelength variations are corrected.

7. An optical scanning apparatus, comprising:

pulse modulating means for performing a pulse modulation with respect to input image data to output pulse-modulated image data;

laser light generating means for generating a laser light beam in accordance with the pulse-modulated image data, said laser light beam having a wavelength variation smaller than 2.0nm per one pulse of the laser light beam;

light deflecting means for deflecting the laser light beam generated by said laser light generating means to convert the laser light beam into a scanning laser light beam; and

scan-imaging means for condensing the scanning laser light beam into a scanning light spot on a surface to be scanned.

8. The optical scanning apparatus as defined in Claim 7, wherein said scan-imaging means satisfies a following condition:

$|\Delta\lambda \times dH/d\lambda| < 5\ \mu m$,

where $\Delta\lambda$ represents the wavelength variation per one pulse of the laser light beam generated by said laser light generating means and $dH/d\lambda$ represents a magnification chromatic aberration of said scan-imaging means.

9. The optical scanning apparatus as defined in Claim 7, wherein said scan-imaging means satisfies a following condition:

W0/WbxDuty<0.8,

where W0 represents an image size corresponding to an image density, Wb represents a beam spot diameter of 1/e^2 in a direction corresponding to the main scanning, and Duty represents a duty ratio in one pulse of the laser light beam.

10. The optical scanning apparatus as defined in Claim 7, wherein said laser light generating means is a multi-beam light source for generating multiple laser light beams with differences of central wavelengths below 10nm among the multiple laser light beams.

11. The optical scanning apparatus as defined in Claim 7, wherein the laser light beam has at least five spectra.

12. An optical scanning apparatus, comprising:

pulse modulating means for performing a pulse modulation with respect to input image data to output pulse-modulated image data;

laser light generating means for generating a laser light beam in accordance with the pulse-modulated image data output by said pulse modulating means, said laser light beam having a wavelength variation greater than 0.5nm per one pulse of the laser light beam;

light deflecting means for deflecting the laser light beam generated by said laser light generating means to convert the laser light beam into a scanning laser light

beam; and

scan-imaging means for condensing the scanning laser light beam into a scanning light spot on a surface to be scanned,

wherein the pulse-modulated image data applied to said laser light generating means from said pulse modulating means is controlled so that a displacement of dot position and variation in dot diameter caused by the wavelength variations are corrected.

13. An optical scanning method, comprising:

performing a pulse modulation with respect to input image data to output pulse-modulated image data;

generating a laser light beam in accordance with the pulse-modulated image data output by said performing step, said laser light beam having a wavelength variation smaller than 2.0nm per one pulse of the laser light beam;

deflecting the laser light beam generated by said generating step to convert the laser light beam into a scanning laser light beam; and

condensing the scanning laser light beam into a scanning light spot on a surface to be scanned.

14. The optical scanning method as defined in Claim 13, wherein said condensing step satisfies a following condition:

$|\Delta\lambda \times dH/d\lambda| < 5\ \mu m$,

where $\Delta\lambda$ represents the wavelength variation per one pulse of the laser light beam generated by said generating step and $dH/d\lambda$ represents a magnification chromatic aberration of said condensing step.

15. The optical scanning method as defined in Claim 13, wherein said condensing step satisfies a following condition:

W0/WbxDuty<0.8,

where W0 represents an image size corresponding to an image density, Wb represents a beam spot diameter of 1/e^2 in a direction corresponding to the main scanning, and Duty represents a duty ratio in one pulse of the laser light beam.

16. The optical scanning method as defined in Claim 13, wherein said generating step generates multiple laser light beams which have differences in central wavelengths smaller than 10nm.

17. The optical scanning method as defined in Claim 13, wherein the laser light beam has at least five spectra.

18. An optical scanning method, comprising:

performing a pulse modulation with respect to input image data to output pulse-modulated image data;

generating a laser light beam in accordance with the pulse-modulated image data output by said performing step, said laser light beam having a wavelength variation greater than 0.5nm per one pulse of the laser light beam;

deflecting the laser light beam generated by said generating step to convert the laser light beam into a scanning laser light beam; and

condensing the scanning laser light beam into a scanning light spot on a surface

to be scanned,

wherein said performing step controls the pulse-modulated image data to reduce a displacement of dot position and variation in dot diameter caused by the wavelength variations.